



10/067171

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PTO/SB/21 (09-04) (AW 10/2004)

Approved for use through 7/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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**TRANSMITTAL
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission 17

Patent Number	7,110,544
Issue Date	September 19, 2006
First Named Inventor	Yoshiho Gotoh, et al.
Art Unit	2137
Examiner Name	Paul E. Callahan
Attorney Docket No.	MTS-710US27

ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/Declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation, Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Request for Certificate of Correction; PTO- 1050; Copy Page 1 of Dec/POA; Copy Page 2 of Amendment; Copy Page 1 of 1449; Copy Pages 38, 42, 52, 72, 88 and 104 of Specification; Return Receipt Postcard
--	--	--

Remarks:**SIGNATURE OF APPLICANT, ATTORNEY OR AGENT**

Firm Name	RatnerPrestia		
Signature			
Printed Name	Lawrence E. Ashery		
Date	January 3, 2007	Registration No.	34,515

Certificate

JAN 10 2007

of Correction

CERTIFICATE OF TRANSMISSION / MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or Printed Name	Donna M. Wellings	Date	January 3, 2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Office, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, ALEXANDRIA, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

JAN 12 2007



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number: 7,110,544
Issued: September 19, 2006
Name of Patentee: Yoshiho Gotoh, et al.
Title of Invention: AN OPTICAL DISK, AN OPTICAL DISK BARCODE FORMING METHOD, AN OPTICAL DISK REPRODUCTION APPARATUS, A MARKING FORMING APPARATUS, A METHOD OF FORMING A LASER MARKING ON AN OPTICAL DISK, AND A METHOD OF MANUFACTURING AN OPTICAL DISK

**REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT
FOR PTO MISTAKE (37 C.F.R. § 1.322(a))**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attention: Certificate of Correction Branch

1. Attached in duplicate is Form PTO-1050 with at least one copy being suitable for printing.
2. Correction of the Official Letters Patent is respectfully requested in view of the following text which appears correctly in the application file:

On the Cover Page, the Title, should read -- AN OPTICAL DISK, AN OPTICAL DISK BARCODE FORMING METHOD, AN OPTICAL DISK REPRODUCTION APPARATUS, A MARKING FORMING APPARATUS, A METHOD OF FORMING A LASER MARKING ON AN OPTICAL DISK, AND A METHOD OF MANUFACTURING AN OPTICAL DISK -- as written in the Declaration/Power of Attorney filed February 4, 2002.

On the Cover Page, Item (63), Related U.S. Application Data, "6,141,419." should read -- 6,141,419, which is a continuation of application No. 08/649,411, filed on May 16, 1996, now Pat. No. 6,052,465. -- as cited in the Amendment filed October 19, 2005.

On Page 2, Item (56), References Cited, FOREIGN PATENT DOCUMENTS, please delete once: "DE 4308680, 10/1993". This document is listed twice.

On Page 2, Item (56), References Cited, FOREIGN PATENT DOCUMENTS, please delete once: "EP 553545, 8/1993". This document is listed twice.

JAN 12 2007

On page 2, Item (56) References Cited, FOREIGN PATENT DOCUMENTS, "5,266,578 10/1993" should read -- 5,266,576 10/1993 -- as cited in an Information Disclosure Statement filed on February 4, 2002.

Column 15, Line 37, delete "Then" and insert -- When -- as indicated on page 38, line 12 of the Specification filed February 4, 2002.

Column 16, Line 61, delete "Then" and insert -- When -- as indicated on page 42, line 5 of the Specification filed February 4, 2002.

Column 20, Line 39, delete "Then" and insert -- When -- as indicated on page 52, line 3 of the Specification filed February 4, 2002.

Column 27, Line 58, delete "Then" and insert -- When -- as indicated on page 72, line 1 of the Specification filed February 4, 2002.

Column 33, Line 63, delete "901i" and insert -- 901j -- as indicated on page 88, line 17 of the Specification filed February 4, 2002.

Column 39, Line 42, delete "intention" and insert -- invention -- as indicated on page 104, line 12 of the Specification filed February 4, 2002.

3. Please send the Certificate to:

Name: **Lawrence E. Ashery**
P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

Name of Assignee: Matsushita Electric Industrial Co., Ltd.

Assignment Recorded on: July 22, 1996

Reel: 8043

Frame: 0940

Respectfully submitted,

RatnerPrestia

Lawrence E. Ashery, Reg. No. 34,515
Attorney for Patentees

LEA/mjc/dmw

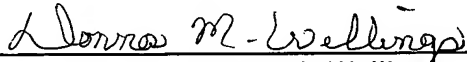
Enclosures: PTO-1050
Copy of Page 1 of Declaration/Power of Attorney
Copy of Page 2 of Amendment
Copy of Page 1 of PTO-1449
Copy of Pages 38, 42, 52, 72, 88 and 104 of Specification

Dated: January 3, 2007

P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

The Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. **18-0350** of any fees associated with this communication.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 Attn: Decision and Certificate of Correction Branch of the Patent Issue Division on January 3, 2007.



Donna M. Wellings

91212

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

PATENT NO: 7,110,544
APPLICATION NO.: 10/067,171
DATED: SEPTEMBER 19, 2006
INVENTOR(s): Yoshiho Gotoh, et al.

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Cover Page

The Title, should read -- AN OPTICAL DISK, AN OPTICAL DISK BARCODE FORMING METHOD, AN OPTICAL DISK REPRODUCTION APPARATUS, A MARKING FORMING APPARATUS, A METHOD OF FORMING A LASER MARKING ON AN OPTICAL DISK, AND A METHOD OF MANUFACTURING AN OPTICAL DISK --.

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Column 15

Line 37, delete "Then" and insert -- When --.

Mailing Address of Sender:

RatnerPrestia
P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

This collection of information is required by 37 CFR 1.322, 1.323 and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PATENT NO: 7,110,544
APPLICATION NO.: 10/067,171
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INVENTOR(S): Yoshiho Gotoh, et al.

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Column 16

Line 61, delete "Then" and insert -- When --.

Column 20

Line 39, delete "Then and insert -- When --.

Column 27

Line 58, delete "Then" and insert -- When --.

Column 33

Line 63, delete "901i" and insert -- 901j --.

Column 39

Line 42, delete "intention" and insert -- invention --.

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Column 27

Line 58, delete "Then" and insert -- When --.

Column 33

Line 63, delete "901;" and insert -- 901/ --.

Column 39

Line 42, delete "intention" and insert -- invention --.

Mailing Address of Sender:

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If you need assistance completing the form, call 1-800-PTO-9199 and select option 2.

Declaration and Power of Attorney For Patent Application

English Language Declaration

COPY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

AN OPTICAL DISK, AN OPTICAL DISK BARCODE FORMING METHOD, AN OPTICAL DISK REPRODUCTION APPARATUS, A MARKING FORMING APPARATUS, A METHOD OF FORMING A LASER MARKING ON AN OPTICAL DISK, AND A METHOD OF MANUFACTURING AN OPTICAL DISK, the specification of which

(check one)

☐ is attached hereto.

☒ was filed on May 16, 1996 as
Application Serial No. 08/649,411
and was amended on May 16, 1996 by Preliminary Amendment
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

JAN 12 2007

Prior Foreign Application(s)			Priority Claimed	
Pat. Appln. Hei 7-261,247	Japan	09, October, 1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
Pat. Appln. Hei 8-008,910	Japan	23, January, 1996	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/>	<input type="checkbox"/>
			Yes	No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Appln. No.: 10/067,171

Amendment Under 37 C.F.R. 1.312 dated: October 19, 2005

Reply to Notice of Allowability: October 12, 2005



MTS-710US27

Amendments to the Specification:

Please amend the paragraph beginning at page 1, line 7:

CROSS-RELATED APPLICATIONS

This application is a Continuation application of U.S. Patent Application Serial No. 09/595,139, filed June 15, 2000, now U.S. Patent No. 6,457,128, which is a Continuation Application of U.S. Patent Application Serial No. 09/441,338, filed November 16, 1999, which is now U.S. Patent No. 6,141,419, issued October 31, 2000, which is a Continuation of U.S. Patent Application Serial No. 08/649,411 filed May 16, 1996, now U.S. Patent No. 6,052,465.

JAN 12 2007

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE
(Rev. 2-32) PATENT AND TRADEMARK OFFICE

Information Disclosure Statement by Applicant

(Use several sheets if necessary)

ATTY. DOCKET NO.
MTS-710US27

SERIAL NO
To Be Assigned

APPLICANT
Y. Gotoh et al.

FILING DATE
Herewith

GROUP
To Be Assigned

U.S. PATENT DOCUMENTS

Exmr Initial	Document Number	Date	Name	Class	Sub Class	Filing Date
	4,677,604	6/30/87	Selby, III et al.			
	4,703,469	10/1987	Pettigrew et al.			
	4,972,399	11/1990	Miyasaka			
	5,191,611	03/02/93	Lang			
	5,392,351	02/21/95	Hasebe et al.			
	5,400,403	03/21/95	Fahn et al.			
	5,457,668	10/10/95	Hibino et al.			
	5,457,746	10/10/95	Dolphin			
	5,065,429	11/12/91	Lang			
	5,513,169	04/30/96	Fite et al.			
	5,761,301	06/02/98	Oshima et al. (corresponds to Japanese Laid Open 5-325193.)			
	5,826,156	10/20/98	Natsume et al. (corresponds to Japanese Laid Open 6-203412.)			
	5,706,266	01/06/98	Brownstein et al.			
	5,696,757	12/09/97	Ozaki et al.			
	5,430,281	7/1996	Lentz et al.			
	5,489,768	2/1996	Brownstein et al.			
	5,587,984	12/1996	Owa et al.			
	5,706,047	6/1998	Lentz et al.			
	5,807,640	9/1998	Ueno et al.			
	5,150,339	9/1992	Ueda et al.			
	5,371,792	12/1994	Asai et al.			
	5,430,281	7/1995	Lenz et al.			
	5,698,833	12/1997	Skinger			
	5,714,935	2/1998	Ryan, Jr.			
	5,754,649	5/1998	Ryan et al.			
	5,822,291	10/1998	Brindze et al.			
	5,905,798	5/1999	Nerlikar et al.			
	5,761,301	6/1998	Oshima et al.			
	6,052,465	4/2000	Gotoh et al.			
	5,155,722	10/1992	Yoshida			
	5,250,787	10/1993	Arii et al.			

FOREIGN PATENT DOCUMENTS

JAN 12 2007

Exmr Initial	Document Number	Date	Country	Class	Sub Class	Translation YES NO
	2-56750	02/26/90	Japan (with partial English translation)			
	5-266576	10/15/93	Japan			
	7-325712	12/12/95	Japan			
	2-44448	02/14/90	Japan			
	63-46541	02/27/88	Japan			
	63-164043	07/07/88	Japan			
	61-190734	08/25/86	Japan			
	553545	08/04/93	EPA			

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reference value 588. This is detected by the light level comparator 587, and a low reflectivity light detection signal, such as shown in Figure 16(5), is output from the low reflectivity light amount detector 586. As shown by a reproduced digital signal in Figure 16(4), no digital signal is output from the mark region since it does not have a reflective layer.

Next, to obtain the start and end positions of the low reflectivity light detection signal, the demodulated clock or synchronizing clock shown in Figure 16(6) is used along with address information. First, a reference clock 605 at address n in Figure 16(7) is measured. When the address immediately preceding the address n is detected by the $(n-1)$ address output section 597, it is found that the next sync 604 is a sync at address n . The number of clocks from the synch 604 to the reference clock 605, which is the start position of the low reflectivity light detection signal, is counted by the clock counter 598. This clock count is defined as a reference delay time TD which is measured by a reference delay time TD measuring section 608 for storage therein.

The circuit delay time varies with reproduction apparatus used for reading, which means that the reference delay time TD varies depending on the reproduction apparatus used. Therefore, using the TD , a time delay corrector 607

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In step 695, the ciphertext of the compressed position information H is constructed. First, in step 695, a secret key, d, of 512 or 1024 bits, and secret keys, p and q, of 256 or 512 bits, are set, and in step 695b, encryption is performed using an RSA function. When the position information H is denoted by M, M is raised to d-th power and mod n is calculated to yield ciphertext C. In step 695d, the ciphertext C is recorded on the optical disk. The optical disk is thus completed and is shipped (step 735k).

In the reproduction apparatus, the optical disk is loaded in step 735m, and the ciphertext C is decrypted in step 698. More specifically, the ciphertext C is recovered in step 698e, and public keys, e and n, are set in step 698f; then in step b, to decrypt the ciphertext C, the ciphertext C is raised to e-th power and the mod n of the result is calculated to obtain plaintext M. The plaintext M is the compressed position information H. An error check may be performed in step 698g. If no errors, it is decided that no alterations have been made to the position information, and the process proceeds to the disk check routine 735w shown in Figure 1 8 B. If an error is detected, it is decided that the data is not legitimate one, and the operation is stopped.

In the next step 736a, the compressed position information H is expanded to recover the original position

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into a plurality of time slots, for example, a first time slot 920a, a second time slot 921, a third time slot 922, and so on. When data is "00", for example, a signal 924a of a duration shorter than the period of the time slot, that is, the period T of a channel clock, is recorded in the first time slot 920a, as shown in part (1) in Figure 26. The pulse 924a whose duration is shorter than the period T of the recording clock is output between $t=T_1$ and $t=T_2$. In this case, using a rotation pulse from the rotation sensor 915a on the motor 915, the clock signal generator 913 generates a modulation clock pulse as shown in part (1) of Figure 24; by performing the recording in synchronism with the clock pulse, the effects of rotational variation of the motor can be eliminated. In this way, as shown in part (2) of Figure 24, a stripe 923a indicating "00" is recorded on the disk within a recording region 925a, the first of the four recording regions shown, and a circular barcode such as shown in part (1) of Figure 27 is formed.

Next, when data is "01", a pulse 924b is recorded in the second time slot 921b between $t=T_2$ and $t=T_3$, as shown in part (3) in Figure 24. In this way, a stripe 923b is recorded on the disk within a recording region 926b, the second region from the left, as shown in part (4) of Figure 24.

Next, when recording data "10" and "11", these data are

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→ When the duty ratio of the stripe on the optical disk, that is, its area ratio, is low, almost correct tracking can be maintained in the stripe area, as shown in Figure 32. Therefore, the address information in the address area 944 at the same radius position of the disk can be played back. This has the effect of quickening the disk rise time after disk insertion since the address can be played back while playing back the stripes without changing the optical head position.

In this case, the address area, an area where no stripes are recorded, should be formed continuously along a length longer than one frame in the same radius portion of the disk.

The operation steps for this method will be described with reference to Figure 40.

When a disk is inserted, the optical head is moved to the inner circumferential portion in step 947a. If no tracking is achieved in step 947n, the tracking mode is switched from phase control to push-pull mode in step 947p. In step 947b, rotational speed control (CAV control) is performed to play back address information. If an address cannot be played back in step 947c, the process proceeds to step 947i to move the optical head inward to play back the PCA stripes. If an address can be played back from an empty portion of the PCA area (a portion not overwritten), the

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performs encryption computation on the disk ID and software ID by using a sub secret key, and generates a password which is transmitted to the user. In step 901m, the personal computer at the user end computes the password by a sub public key and compares it with the drive ID. If the result is OK, the process proceeds to step 901n where the software scramble is unlocked.

In this way, by communicating with the password issuing center via the network by using a disk ID, the software scramble or encryption on the disk can be unlocked. In the case of the disk ID of the present invention, since the ID varies from disk to disk, the password is also different; this has the effect of enhancing security. In Figure 22, ciphertext communication is omitted, but by encrypting data using a public key recorded in the PCA area, such as shown in Figure 46, during the communication performed in steps 901i and 901j, data security during communication can be further enhanced. This has the effect of ensuring safe transmission of personal billing information via a communication means such as the Internet where the security level is low.

We will finish here the descriptions of the first-half part (I) and the second-half part (II), and now proceed to a description of appertaining matters relating to the process from optical disk manufacturing to the playback operation of

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shown in Figure 20, are recorded on a disk, and while allowing a certain degree of tolerance on the measured value according to the actual situation at the time of reproduction, the reproduction operation is permitted when the pass count 867 is reached; the margin allowed for an error due to a surface scratch on the disk can be controlled by the copyright owner prior to the shipment of the disk. This will be described with reference to Figure 19.

In Figure 19, the disk is reproduced in step 865a to recover the encrypted position information from the barcode recording portion or pit recording portion of the present invention. In step 865b, decryption or signature verification is performed, and in step 865c, a list of optical mark position information is recovered. Next, if the delay time TD of a reproduction circuit is stored in the circuit delay time storing section 608a in the reproduction apparatus of Figure 15, TD is read out in step 865h and the process proceeds to step 865x. If TD is not stored in the reproduction apparatus, or if a measurement instruction is recorded on the disk, the process proceeds to step 865d to enter a reference delay time measurement routine. When address Ns-1 is detected, the start position of the next address Ns is found. The frame synchronizing signal and the reproduced clock are counted, and in step 865f, the reference optical mark is detected. In step 865g, the circuit delay time TD

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